

THE

Soybean Digest



Official Publication

OF

THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 2 • NUMBER 5



MARCH • 1942

MARKET SUMMARY

SOYBEANS			
	March 11	March 4	February 11
May (old)	1.94 1/4	1.95 1/4	1.96 1/4
May (new)	1.96	1.96 1/4	
July (old)	1.96 1/4	1.96 3/4	1.98 1/4
July (new)	1.95 1/4	1.98	
October	1.89	1.88 1/4	1.92 1/4

SOYBEAN OIL			
Tanks, Midwest Mills	11 1/4c	11 1/4c	11 1/4c

SOYBEAN OILMEAL			
May	\$39.50	\$39.00	\$39.75
		@39.50	
July	39.00	38.80	39.00
	@39.50	@39.25	@39.50
October	38.30	38.60	38.50
	@39.00	@39.25	@39.00

CASH CONVERSION SCALE

1 Bushel Soybeans, wt. 60 lbs. \$1.85*

INTO

8.8 lbs. Crude Oil @ 11 1/4c 1.034
49.5 lbs. Meal @ 1.875c928

\$1.962

Gross Processing Margin per Bu. 11.2c
Gross Processing Margin per Bu. Last Month 11.5c

*Approximately midway between Chicago cash and Iowa country points on March 11. Add or subtract from margin according to price actually paid. Meal price, Memphis, less \$2 per ton for bagging.

SHORTENING SHIPMENTS

Week ending February 14 7,846,866 lbs.
Week ending February 21 6,748,257 lbs.
Week ending February 28 6,705,419 lbs.

Soybean oil hugged the maximum allowable, with meal remaining steady to slightly weaker. There was a lack of demand for meal, and some crushing plants were shut down for periods and others operating at only part of capacity. Soybeans remained strong, with some further strength indicated just after the close of the period under consideration due to passage by the House of Representatives of the Bankhead-Gillette Bill.

THE Soybean Digest

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Published on the 15th of each month at Hudson, Iowa, by the American Soybean Association. Entered as second class matter November 20, 1940, at the postoffice at Hudson, Iowa, under the Act of March 3, 1879. Forms close on 10th of month. Subscription price to association members, \$1.00 per year; to non-members, \$1.50 per year.

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LET'S ALL HELP THE U. S. A.!

THE subscribers of this publication are men who have for the most part a primary economic interest in soybeans — growers, handlers, processors, manufacturers, research men and educators, together with retail establishments, and consumers of soybean food products.

A definite community of interest has been established — so definite that today we speak of "The Soybean Industry" as distinct and separate from other industries.

Today, however, we are aware of a greater calling. Our Nation desperately needs huge additional quantities of our product, soybean oil, to assist in launching an offensive against the enemies who seek to destroy her.

Tremendous new acreages of soybeans are being called for. The soybean industry feels that it can gather the processing capacity to crush the 1942 crop. Important though this is, it is putting the cart before the horse.

The soybeans must be planted in May if the oil is to help the Nation in January. If the quotas are to be met, farmers who already grow soybeans must grow more. **AND FARMERS WHO DON'T GROW SOYBEANS MUST BEGIN NOW.** This includes many farmers who don't like to grow soybeans.

Much must be done in a hurry if the quotas are to be equalled and exceeded. Public agricultural agencies now are urging the expansion through publicity and personal contact.

A most logical method seems to be the inspection of AAA crop sheets, and letter writing and contact to those farmers on fairly level land who do not seem to be planting as many soybeans as is consistent with the National need.

Let's "sell" our neighbors on soybeans! Let's contact our local agricultural agencies and see if there is anything that we, as experienced in the industry, can do to encourage new production.

Let's prove that we put our country first!

DESPITE the obvious inconveniences, the priorities which have been established on all types of industrial machinery, may prove to be definitely helpful to the soybean industry.

If next Fall, it appears that the existing soybean crushing capacity, plus copra and cottonseed crushing capacity which can be con-

verted, is inadequate — then, the oil mill could be relaxed. At present, this seems an unlikely contingency, and in the meantime, it is fortunate that there is not an inordinate rush to the crushing industry in the hope of quick profits.

COPY 2

SOMEONE has said, it doesn't matter who — "An honest day's work will win this war — laziness will lose it." Those are words which it is well to remember. This war is a job to be done — a job which must be done before Hitler's foul brood beat us to it.

We have:

- (1) To get there first with the most men.
- (2) To see to it that the American soldiers and their Allies are the best equipped in the world.
- (3) To see to it that American troops are the best trained in the world.

When these things have been done we may honestly expect to see beneficial results — but not before. When we think of what we have to lose in this war:

- (1) Our land
- (2) Our livelihood
- (3) Our homes
- (4) Our entire code of conduct built up through the centuries by our churches, our schools, our martyrs, saints, and seers

then we can begin to see what kind of an effort which this conflict demands.

Our enemies have gambled everything to rob us of our heritage.

Can we afford to gamble less to destroy them?

IF you are selling soybean seeds, it would be a good idea to get in touch with the office of your state war board (usually in the same office as the state AAA) and find out what varieties are being accepted in your state for the Government's minimum offering of \$1.60 per bushel on No. 2 soybean seeds.

If the seeds which you are handling are approved (and they probably will be if you are handling one of the proven varieties) this is about the best supporting argument there is for your advertisements and sales talk — that is, next to the germination percentage, moisture content, and your own reputation for reliability.

THE

Soybean Digest



Published by the American Soybean Association, Hudson, Iowa, as a service to its members. Forms close on 10th of month. Subscription price, to association members, \$1.00 per year, to non-members, \$1.50 per year. Advertising rates on application.

GEO. M. STRAYER, Editor

ROBERT BLISS, Managing Editor

VOL. 2 · NO. 5

"BATTLE OF THE SOYBEAN"

THE soybean industry now has its eye "on the ball," its definite role assigned in the 1942 crusade for complete victory over the Axis powers!

The industry is going to:

- (1) Provide some 350,000,000 extra pounds of oil —
- (2) Produce roughly 2,000,000,000 pounds more of high protein feed.

The Japanese initial successes in the Battle of the Southwest Pacific and the Battle of Southeastern Asia have taken from us the source of a half billion pounds of vegetable oil a year — potentially the source of much more vegetable oil. The remainder of the 1,100,000,000 pound deficit is caused by the added needs of war.

"Battle of the Soybean"

By winning the Battle of the Soybean Belt, the American soybean industry will do much toward offsetting Japanese gains, aiding our armed forces in rooting out the Japanese and preparing the death blow against Hitler and the Nazis.

The new goals by states represent some striking developments. Thus, Iowa acreage will be increased 801,000 acres over 1941, Illinois 615,000 acres, Indiana 344,000 acres and Ohio 226,000 acres.

The accompanying table lists the new "suggested acreage" by states, the estimated acreage in 1941 and 1940, and the percentage 1942 acreage will be as related to 1941.

All to Increase

From the acreage goals, it may be seen that the 29 soybean producing states all now are going to increase soybean acreage. The bulk of the effort of course will be expended in the four great producing states of Ohio, Indiana, Illinois and Iowa.

Another question arises. This is the crushing capacity of the Amer-

SUGGESTED GOALS FOR 1942: SOYBEANS FOR BEANS

STATE	Suggested acreage 1942	Estimated Acreage		Percentage 1942 acreage in of 1941
		1941	1940	
	1,000 acres	1,000 acres	1,000 acres	Percent
Illinois	2,900	2,285	1,995	127
Indiana	1,200	856	723	140
Iowa	1,750	949	709	184
Kansas	125	47	26	266
Michigan	150	96	72	156
Minnesota	175	80	53	219
Missouri	300	187	109	160
Nebraska	30	20	4	150
Ohio	900	674	570	134
South Dakota	10	—	—	—
Wisconsin	60	37	25	162
Total	7,600	5,231	4,286	145
Delaware	50	30	25	167
Maryland	35	20	19	175
New Jersey	10	7	6	143
New York	15	12	14	125
Pennsylvania	30	15	14	200
West Virginia	3	2	1	150
Total	143	86	79	166
Alabama	60	19	10	316
Arkansas	250	116	63	216
Georgia	50	13	13	385
Kentucky	60	43	31	140
Louisiana	120	17	15	706
Mississippi	250	71	39	352
North Carolina	282	171	160	165
Oklahoma	10	2	2	500
South Carolina	30	12	10	250
Tennessee	60	20	19	300
Texas	10	3	3	333
Virginia	75	51	49	147
Total	1,257	538	414	234
U. S. Total	9,000	5,855	4,779	154

ican soybean industry. Is the vitally needed machinery available to convert the vastly expanded supply of soybeans into the needed products of oil and meal?

The answer appears to be "yes" — or nearly so. Supposing that we produce an average of 18 bushels of soybeans per acre (which is probably liberal for a national average). That will mean a national total of 167,000,000 bushels of soybeans. We shall say that 17,000,000 bushels are held back for seed for the 1943 crop. This leaves a total of 150,000,000 bushels.

Crushing Capacity

According to the U. S. Regional Soybean Industrial Products Labora-

tory, the nation's soybean crushing capacity now is approximately 105 million bushels per year.

To this may be added 20,000,000 bushels, estimated as the crushing capacity of cottonseed mills which have crushed soybeans in the past. We have then, a definite crushing capacity of 125,000,000 bushels. To this may be added the crushing capacity of mills in coastal areas which heretofore have been utilized in the crushing of imported oilbearing materials, and those cottonseed plants which have never before crushed soybeans, but which could be adapted.

(Continued col. 1, page 3)

SOYBEAN SEEDING PRACTICES

By W. L. BURLISON and J. C. HACKLEMAN
University of Illinois



Dr. Burlison inspects Chief soybean test plot.

TWO AUTHORITIES SAY:

BATTLE

(Continued from page 2)

Dr. W. H. Goss of the U. S. laboratory estimates that the copra mills on the west coast could crush from 11 to 12 million bushels of soybeans annually, and to this could be added the capacity of some additional copra crushing plants on the east coast and in the midwest.

SOYBEAN CRUSHING CAPACITY BY STATES

Basis, 365 days per year, less 5 per cent.

State	Million Bushels per Year
Illinois	52.6
Indiana	11.4
Iowa	12.1
Kentucky	3.7
Ohio	12.9
Virginia	1.7
Wisconsin and Minnesota.....	1.9
Michigan	1.2
Missouri	2.5
Nebraska, Kansas and Colorado.....	2.6
New York and Pennsylvania.....	2.3

Total104.9
Cottonseed States 20.0

This figure represents total crushing capacities of cottonseed mills which have crushed some soybeans in the past.

Figures courtesy U. S. Soybean Industrial Products Laboratories, Urbana, Illinois.

Of course, our work has barely begun. Goals are not actualities. But everything points to an all-out assault on the Axis by the American soybean industry!

● 24" Rows Yield Higher Than 8" Rows (Drilled Solid)

THE best method, rate, and time of seeding soybeans in order to obtain maximum yields of grain was a matter on which opinions and practices differed widely during the years when soybeans were becoming established as a farm crop in Illinois. Tests to determine the relative merits of the different practices were therefore begun at Urbana in 1926 and continued through 1932.



J. C. Hackleman of Illini beans planted in rows 24 inches and 8 inches apart (grain-drill width). Beans seeded with a grain drill in 8-inch rows are usually said to be "drilled solid," as distinguished from those drilled in rows far enough apart to retain the row appearance throughout the growing period.

● Early Planting Results Best

Plots Kept Clean

Where the beans were drilled solid, the rates of seeding ranged from 48 to 282 pounds an acre. In rows 24 inches apart the rates ranged from 32 to 147 pounds an acre. The soybeans drilled solid were cultivated with a rotary hoe two or three times during the early part of the growing season, those in 24-inch rows were cultivated three times with a rotary hoe and two or three times with a duck-foot cultivator.

Each rate of seeding for each distance of planting was made in duplicate. Because these were on the Experiment Station South Farm and the field superintendent, Mr. Chapman, felt weeds would be a reflection on his husbandry, no weeds were allowed to grow in the drilled solid beans.

Row-Yields Higher

Acre-yields of grain were higher where the beans were seeded in rows 24 inches apart than where they were drilled solid. Average yields from plots drilled solid at the various rates of seeding were all below the average yields from plots drilled in 24-inch rows at the same rates (Fig. 1).

(Please turn page)

SEEDING

(Continued from page 3)

In two years, 1929 and 1932, each plot seeded in 24-inch rows yielded more grain than the highest yielding plot drilled solid. In the three remaining years (1928, 1930, and 1931) 13 of the 18 plots seeded in 24-inch rows produced more grain than the highest yielding plot drilled solid.

Individual Decision

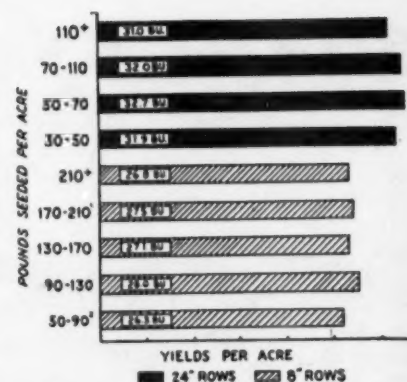
Although in these tests a higher yield of grain was obtained by planting the beans in rows, this fact does not necessarily justify row planting under all conditions. The individual producer must decide which of the two methods of planting is more applicable for his conditions taking into consideration competition for labor and equipment, the relative

infestation of weeds and comparative cost of growing.

Growing costs are usually higher when the beans are planted in rows far enough apart to be cultivated, for two or three cultivations with a row cultivator are usually required in addition to the cultivations with a rotary hoe that are usually given to beans planted by either method. Moreover the cultivations are likely to compete with corn for labor and equipment because they usually come at the time when corn needs to be cultivated.

Weed Control Aid

On the other hand, planting beans in wider rows so they can be cultivated with a row cultivator gives better control of weeds than is possible when the beans are drilled solid with a grain drill. For weed



¹Four-year average, 1928-1930, and 1932.

²Two-year average, 1931 and 1932.

FIG. 1. — YIELDS OF SOYBEANS PLANTED AT VARIOUS RATES IN ROWS 24 INCHES APART AND IN ROWS 8 INCHES APART, 1928-1932

From the standpoint of yields obtained, no important advantage was held by any one rate of seeding over the other rates. Seedings in rows 24 inches apart consistently yielded more than those drilled solid.

control in soybeans drilled solid farmers usually depend on two or three cultivations with a rotary hoe while the plants are young and the shading out of the weeds after the plants have grown large enough to cover the ground. Some farmers not already faced with a serious weed problem have been able to control weeds in beans drilled solid. Nevertheless in many localities failure to control weeds in beans is causing the weed menace to become increasingly acute.

Increasing or decreasing the rate of seeding did not consistently affect the grain yield of the Illini soybeans grown in these tests (Fig. 1). Of the soybeans drilled solid, those seeded at 90 to 130 pounds an acre gave the highest average yield for the five years of the test, although the yearly results varied considerably. In 1928 and 1929, for example, the seedings that were made at more than 210 pounds an acre gave the highest yields, while in 1932 the 50-90-pound seedings gave the highest yields. When the beans were planted in 24-inch rows, 50 to 70 pounds an acre gave the highest average yield, though again there was much variation from year to year. In 1930 the highest yields were obtained from seedings within the 70-110-pound range, and in 1931 and 1932 from seedings within the 30-50-pound range.

"Moderate Rate"

In view of such similar grain yields from different rates in the same year, and the wide year-to-year variations in yields from seedings at the same rate, it is evident that farmers cannot have much confidence that

(Continued next page)

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PRACTICES

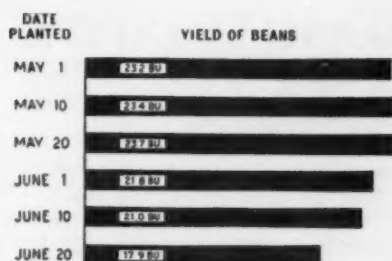
(Continued from page 4)

increasing the rate of seeding above a moderate rate (about 1 bushel an acre for beans drilled in 24-inch rows and 1½ to 2 bushels drilled solid) will increase the yield of grain. Nevertheless, except when seed is high-priced, there is some justification for planting at rates a little higher than these, because of the greater likelihood of obtaining a good stand under adverse conditions. Particularly where beans are drilled solid, a heavy stand is desirable for weed control.

In an effort to discover the best time to seed soybeans, plantings were made over a period of six years at six 10-day intervals, beginning May 1 each year and extending to June 20. Twelve varieties, at least ten each year, were seeded in row rows replicated four times.

Early Seeding Best

In general the early seedings of soybeans yielded more grain than the later seedings, the yields of each of the May seedings averaging higher during the six years than those of either the June 1 or June 10 seedings by approximately 2 bushels an acre, and higher than those of the June 20



(6 YEARS 1926-1931)

FIG. 2. — AVERAGE ACRE-YIELDS OF SOY-BEANS PLANTED AT DIFFERENT DATES

Though the May seedings averaged higher yields than the June seedings, no great decrease occurred until the June 20 seeding date. The results shown here are averages of twelve varieties.

seedings by about 6 bushels an acre (Fig. 2) During five of the six years the highest yields were obtained from May seedings. There was no marked difference in the average yields obtained from the May 1, May 10, and May 20 seedings.

Of 67 comparisons involving the twelve varieties over a period of six years, the May 1 seeding yielded highest 19 times, May 10, 14 times, May 20, 14 times, June 1, 7 times, June 10, 8 times, and June 20, 3 times. In one of the 67 comparisons the yields obtained from the May 1 and the June 1 seedings tied for highest

rank, and in another the May 10 and May 20 seedings tied for highest. May seedings returned the higher yield in 72 percent of the trials.

The highest average yield of each variety except Wisconsin Black was obtained from one of the May seedings. Wisconsin Black, an extremely early variety, had the highest average yield from the June 10 seeding.

— s b d —

SEED PURCHASE MOVED FORWARD

Holders of soybean seed will have less than 3 weeks after reading this to take advantage of the government purchase offer. The date for acceptance of beans, announced as May 31 in the February issue of The Digest, has been advanced to April 10.

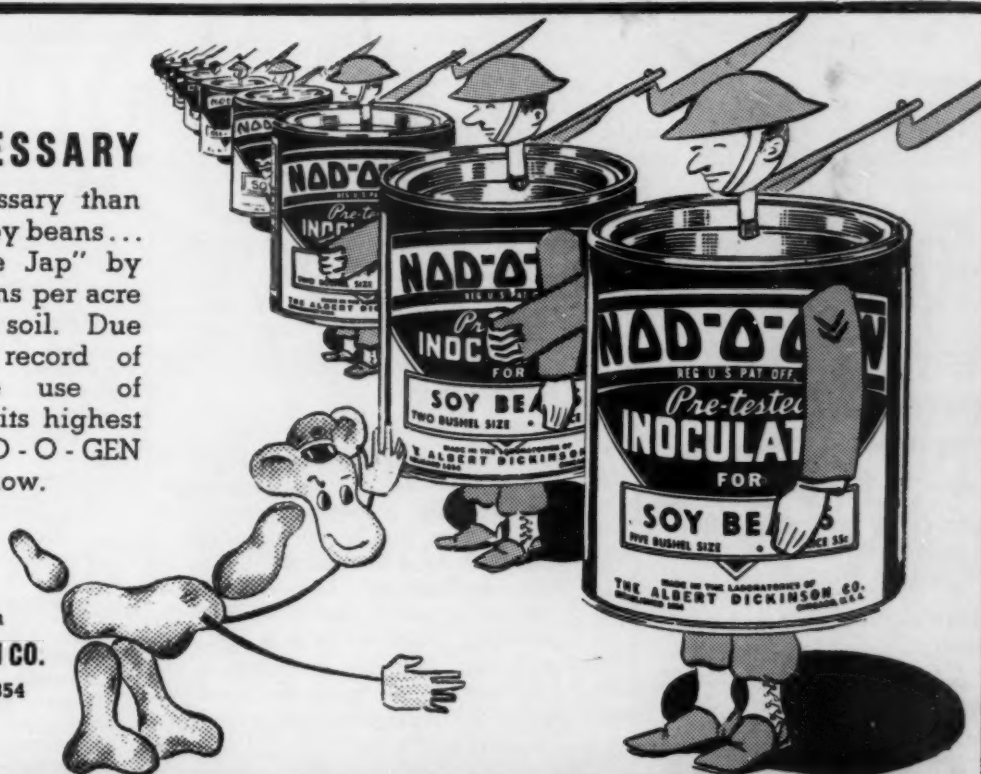
While seed holders are urged to make the excess beyond their own requirements available to their neighbors and seed dealers, the Government will accept unmixing approved varieties of soybeans with a germination test of 85 per cent or better, for \$2.00 a bushel.

Present indications are that adequate supplies of soybean seeds of good germination are available in the principal producing states.

MORE NECESSARY

It is more necessary than ever to inoculate soy beans... to help "Slap the Jap" by growing more beans per acre and enriching the soil. Due to its excellent record of performance, the use of NOD-O-GEN is at its highest peak. Order NOD-O-GEN from your dealer now.

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FOR BETTER DAIRY COWS

By DR. J. W. HAYWARD,

Research Director, Archer-Daniels-Midland

SOME twenty years ago extensive experiments were conducted with several protein supplements as a feed for dairy heifers by the Virginia Agricultural Experiment Station. Excellent results were obtained with soybean oil meal. In a publication by that station in 1921, Prof. R. E. Hunt made the following prediction: "This (soybean oil meal) is a concentrate that should become very popular with dairymen."

This prophecy of Professor Hunt's has already come true regardless of the fact that it has only been during the past few years that the production of soybean oil meal has been sufficiently large so that it was generally available to dairy farmers in this country. Numerous experiments since 1921 have confirmed the early findings at the Virginia Station. These results, together with satisfaction by increased users everywhere, have done a lot in establishing the present popularity of soybean oil meal.

Virginia Work Continued

The Virginia Agricultural Experiment Station carried on with their studies and in 1925 reported soybean oil meal superior to cottonseed meal in protein efficiency for dairy cows. In 1927 the Delaware Agricultural Experiment Station concluded following feeding experiments with dairy cows, that soybean oil meal due to its high protein content had a higher value per ton than peanut meal and for the same reason a much higher value than ground soybeans, sometimes referred to as soybean meal. Similar tests have been repeated at numerous state institutions during more recent years and always with satisfactory results.

Nutrition experts have not overlooked the merits of soybean oil meal for dairy animals of various ages. You now find soybean oil meal in practically every leading brand of calf starter meals, growing rations for calves and heifers, dairy feeds and in fitting rations for dairy animals.

Merits Honors

The success of soybean oil meal in winning honors at experiment stations and in meeting the whole hearted approval of dairymen is probably due to a few of its many unique qualities. Soybean oil meal is unusually palatable to dairy cattle, it supplies protein at lowest cost, is highly digestible and its proteins are of excellent quality for growth, health, milk production and reproduction.

In view of its established merits and availability, soybean oil meal is destined to be used in the future in ever increasing amounts as a practical and profitable protein feed for dairy cattle.

A 5-PRONGED PROGRAM!

THE Federal Government is now the sponsor of a five-pronged program to expand the production of vegetable oils. These measures include:

1. A program to assist farmers in obtaining soybeans and peanuts for seed.

2. A price supporting purchase and loan program for soybeans, peanuts and flax.

3. A revision in the AAA program to add grasses and legumes seeded with flax, peas or small grain to the list of crops and land uses which may be used to meet the requirement that 20 per cent of the

farm's cropland be devoted to soil building crops.

4. A revision in the AAA program providing that approved cover crops — seeded next fall on acreage now devoted to peanuts grown for oil — may qualify for as much as one-half of the erosion-resisting acreage requirement. In most of the peanut growing areas, the soil-building program requires that co-operators devote a minimum of 25 per cent of their farm's cropland for a part of the program year to erosion-resisting crops.

5. A plea to cotton growers to plant their full allotments in order to make available as much cottonseed oil as possible, except where this would interfere with contemplated peanut or soybean increases.

RESEARCH*

THE research work of the laboratory on soybean oil is directed toward the study of nonfood uses, mainly for uses in protective films and coatings where specialty oils, such as tung, perilla, linseed, and oiticica are used. With the outbreak of the war the problem of obtaining adequate supplies of these drying oils has become more difficult. Hence, there is an increased interest in the technological studies on the fractionation and modification of domestic oils as a means of obtaining replacement products.

* * *

The exposure tests on oil vehicles for paints have now covered a period of 4 years; in these soybean oil, linseed oil, and a mixture of equal portions of soybean and perilla oils were compared. The results of these tests show that paints made with soybean oil alone or with blended soybean and perilla oils, when properly formulated with pigments and driers, are equal in durability to similarly-formulated linseed-oil paints.

* * *

Comparative tests have also demonstrated that, when properly formulated, very satisfactory varnishes and enamels can be made containing soybean oil.

An excellent water-resisting varnish has been made with soybean oil in combination with a phenolformaldehyde resin. This type of varnish has proved very durable and has excellent gloss retention.

* * *

When methods to accomplish a certain type of isomerization are developed (for soybean oil) the fast-drying products may be modified to give a product of the tung-oil type, and our emergency needs and dependence on imports for this type of oil for water-resisting coatings may be met.

* * *

Studies in the laboratory have demonstrated that the protein can be extracted from the meal or flakes very satisfactorily with water or dilute alkali, and also that the extracted portion can be precipitated from the extract by acidification to about pH 4.6. The precipitated protein may then be separated from the liquor, which also contains the sugars and other soluble materials extracted from the meal, and be dried for subsequent use. Pilot-plant investigations are being initiated to determine the variations in conditions of extraction necessary to obtain protein products suitable for making adhesives, plastics, and textile fibers.

* * *

A large potential use for soybean protein is as an adhesive in paper coatings. That it can serve this purpose very satisfactorily has been demonstrated. The principal objection to its use has been the lack of whiteness in the finished paper.

This objection may now be overcome through the use of a bleaching process recently developed in the soybean laboratory whereby coatings of satisfactory whiteness may be obtained. The bleaching agent may be zinc or sodium hyposulfite. An application for a public service patent to protect this process has been filed. A commercial mill run using this process for bleaching soybean protein paper coating is planned.

*Excerpts from an address by Dr. T. H. Hopper, director of the U. S. Regional Soybean Industrial Products Laboratory, at the Illinois Farm and Home Week, February 5, 1942.

SEEDS

HOW cold did it get in your granary during the winter? Probably you don't know — exactly. If you know the approximate temperature which prevailed in your granary during the coldest time of the winter, and also know the moisture content of your soybeans, you may be able to estimate the percentage of viability loss in your soybeans due to freezing.

At right is a table computed by Dr. R. H. Porter, head of the Iowa State College seed testing laboratory, and

EFFECT OF FREEZING TEMPERATURES ON GERMINATION OF SOYBEAN SEED DIFFERING IN MOISTURE CONTENT

VARIETY	Percent Germinating after exposure to									
	20° F.					-20° F.				
	Over 50% H ₂ O	40-50% H ₂ O	25-35% H ₂ O	15-23% H ₂ O	Under 14% H ₂ O	Over 50% H ₂ O	40-50% H ₂ O	25-35% H ₂ O	15-23% H ₂ O	Under 14% H ₂ O
	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O	H ₂ O
Dunfield	68	100	100	100	100	0	38	94	96	97
Mukden	80	100	100	100	100	0	58	93	100	98
Illini	80	99		99	99	0	64		99	100
Mandarin		100	99	100	99		63	97	98	100
Scioto	75		99	99	98	0		62	86	91
Manchu	96	99		100		4	29		97	
Peking		100		100	99		25		99	100

Data obtained from small lots of seed by Iowa Agr. Exp. Station. 1939-40.

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AT THE FOLLOWING
PREPAID PRICES

**16 oz. \$1.00
1 qt. 1.85
1/2 gal. 3.50
1 gal. 6.50**

*UNQUALIFIEDLY
GUARANTEED

from
THE

Soybean Digest

Hudson

Iowa

Wayne A. Robbins, using data obtained from small lots of seed at the Iowa Agricultural Experiment Station during the winter 1939-1940. check it against your soybean variety, moisture content, and coldest temperature.

— s b d —

HOW SHOULD SOYBEAN SEEDS BE PRICED?

HOW should soybean seeds be priced? Much depends on germination and moisture tests, and on the reliability and reputation of the dealer. In general, however, it is wise to recommend to new growers that they purchase one of the established varieties at a "reasonable" price. A reasonable price is that which allows the dealer what is considered a fair margin of profit.

The United States Department of Agriculture has compiled a table of field seed prices by states, based on the reports of 1,933 retail seed dealers.

Soybean seed, which averaged \$1.15 per bushel higher than a year ago, are appearing in the various states and regions at the following average prices:

New England	\$3.40
New York	3.00
Pennsylvania	2.55
New Jersey	2.30
Maryland	2.30
Virginia	2.55
West Virginia	2.65
Southeastern	3.10
Tennessee	2.75
Kentucky	2.75
Ohio	2.40
Indiana	2.45
Illinois	2.40
Iowa	2.50
Missouri	2.55
Michigan	2.35
Wisconsin	3.05
Minnesota	3.30
North Dakota	2.95
South Dakota	3.25
Nebraska	2.55
Kansas	2.60
Oklahoma	2.60
Arkansas	3.05
Texas	3.45



A good crop of soybeans will grow on good land without proper inoculation —but it grows at an extra cost of at least \$10 per acre in nitrogen taken from the land.

Neither prior crops nor the presence of nodules guarantee the proper inoculation necessary to take this nitrogen "Free From the Air."

Always Use



INOCULATION

"THE PEER OF THE BEST"

Guarantee proper inoculation
at a cost of only pennies
per acre

**TOP RANKING QUALITY
AT NEW LOW PRICES**

2 bushel size \$.30
5 bushel size45
25 bushel size 1.95
30 bu. size (6-5 bu. cans) 2.60

**KALO INOCULANT
COMPANY**
QUINCY, ILLINOIS



SEEDS



CARE FOR YOUR SEED!

CARE of soybean seeds is always an important matter, and especially so this year when the vast expanse in planned acreage places new seeds at a premium.

This year, the first thing to do, of course, is to obtain germination tests. Moisture tests are also important. Testers suitable for soybean seed are available in elevators in the heavier growing areas.

Supposing that your seed beans show too high a moisture content (or, you suspect that they are too wet). What can you do about it between now and warm weather, when heating may cause a deterioration in the germination of your soybean seeds?

If you are in the seed or elevator business, you can use a seed blower

to dry your seed beans. If you are in neither business, there are several other things that can be done.

1. Sack your seed beans! Place them in porous sacks, which are not too large in diameter.

2. Place them near a door or window, where they can get ventilation and cross-ventilation.

3. Remove your seeds from the vicinity of livestock. Livestock exude much moisture from their bodies, which will be absorbed by your soybeans if they are over a stable or livestock pen.

4. If you wish to improvise a drier, spread your soybeans out on the floor of a warmed brooder house.

5. Be certain that the place where your soybean seeds are stored is weatherproof.

6. Remember that a soybean moisture content of 12 per cent is the highest that is safe from the seed standpoint.

If you have soybeans that you have reason to believe contain too much moisture, move them onto the market as soon as possible — but not as seed.

— s b d —

Seed Directory

A charge of \$1 has been made for listing in the February, March and April issues. Listings for the April issue can be made for 50c. Quantity for sale and variety are included.

Ohio

Delphos — L. W. Adam, 110 bushels Dunfields, 80 bushels certified.

Maumee — W. N. Woods, 100 bushels Richland, 150 bushels Bansei edible soys.

Indiana

Fort Wayne — O. L. Bryant & Son, R. 4, 400 bushels Richland certified, 700 bushels Dunfield certified.

Illinois

Arthur — Turner Seed & Supply, 1,200 bushels certified Chief, 5,000 bushels Illini, 3,000 bushels Dunfield, 1,000 bushels Mansoy.

Mason City — Ainsworth Seed Company, 1,500 bushels Illini, 50 bushels certified Chief.

Iowa

Breda — Edward Putbrase, 700 bushels certified Mukden

Marcus — John Sand, 5,000 bushels Mukden certified, Richland certified.

Hudson — Strayer Seed Farm, 1,000 bushels Mukden, 500 bushels Richland, 300 bushels Dunfield, 30 bushels Kanro (veg.), 5 bushels Bansei (veg.).

Minnesota

Faribault — Farmer Seed & Nursery Company, Manchu, Habaro, Mukden, Richland.

Wisconsin

Elkhorn — S. B. Simons & Sons, 400 bushels No. 3 Manchus, 500 bushels Mukdens.

Owen — Owen Canning Corporation, Soygood (veg.). No quantity specified.

New Jersey

Vineland — George A. Mitchell, Magnolia Road, 18 bushels Imperial (veg.), 3 bushels Jogun (veg.).

WHAT OF VARIETIES?

WHAT variety of soybeans am I to recommend (if a processor, agronomist, elevator man, or seed salesman)?

What variety am I to grow (if a grower)?

These are questions, which, we suspect, a large proportion of the readers of The Soybean Digest already have determined for themselves.

For those readers who are not quite sure, and for those readers who desire additional data (which, we hope, includes most of those interested in the industry), we are listing below comparative yields of popular varieties, as determined at the Purdue Agricultural Experiment Station, Lafayette, Ind., and the Louisiana Agricultural Experiment Station, Baton Rouge, La. the latter because of the greatly expanded acreage intended

in the Delta area of Mississippi, Arkansas and Louisiana.

Any reader may have found different results in his own experience, but these represent the experience of experiment stations in widely separated areas over a period of years.

Inspection of the Indiana records will reveal a remarkably close deviation in several of the standard varieties. Certain of the Louisiana hybrids, notably 38-40, 38-34, and Tanyellow 36, have stood out for their achievement at the southern institution.

The Iowa War Board has approved Manchu, Mukden, Dunfield, Illini, Illinois Chieftain, and Richland soybeans as approved varieties for that state on which the government minimum price of \$1.60 per bushel for No. 2 yellow with 17.5 per cent oil content, 10 per cent moisture basis, will apply this year.

Indiana

Variety	Days Required to Mature*	Aver. Yield per Acre Seeded in 34" Rows 1933-40	
		Grain Bu.	Hay Tons
Richland	112	29	2.0
Mukden	115	29	2.1
Mandell	120	30	2.2
Dunfield	122	30	2.2
Illini	124	32	2.3
Manchu	128	32	2.3
Kingwa**	132	30	2.5
70218-2	137	33	2.5
54563-5	140	27	2.5
Mingo	123	30	2.3***
Chief	130	32	2.7***

*Combining date 5 to 10 days later. Average date of planting May 27.

**Black Variety, primarily for hay.

***Figures on Mingo and Chief for 1936-1940.

Louisiana

Variety	Hay Lbs. Seed Bushels Per Per Acre** Av. 1939-40-41	
La. Hyb. 38-40.....	6908	26.7
La. Hyb. 38-34.....	6568	25.3
Tanyellow Hyb. 36.....	6250	25.3
La. Hyb. 38-53.....	6572	24.6
La. Hyb. 38-49.....	6082	23.8
La. Hyb. 38-56.....	7190	23.6
La. Hyb. 38-47.....	6034	23.6
Tanyellow Hyb. 11.....	6363	23.3
La. Hyb. 38-44.....	6316	22.5
La. Hyb. 38-50.....	6223	21.2
La. Hyb. 38-32.....	6342	20.9
La. Hyb. 38-43.....	7241	20.7
La. Hyb. 38-3.....	7634	20.3

**Most figures in this column are for two year averages.

BANSEI
SOYBEANS

A Leading Edible Variety
Large or Small Orders

**FARM
MANAGEMENT
INC.**

IRWIN, OHIO



FLYING HIGH

Inoculation of soy beans — so vital to offense agriculture — is flying high . . . more being used than ever. See your dealer early and arrange for your supply of NOD-O-GEN.

Inoculator Division
THE ALBERT DICKINSON CO.
Chicago, Ill. Est. 1854

NOD-O-GEN
The Pre-tested Inoculator

**America's Largest Selling
Complete Inoculator Line**

Why Take Chances?

GERMINATION TESTS ARE EASY TO MAKE



Model A Mangelsdorf Germinator

With a

MANGELSDORF GERMINATOR

It is easy to make germination tests with this small portable germinator. The Mangelsdorf Germinator can be used for both daylight and dark germination. The temperature is automatically controlled by a bi-metal thermostat which can be set. Two 40 watt bulbs supply the heat. The germinator has 5 trays size 10" x 15". It is rigidly constructed of metal and insulation board. Dimensions are 17"x19"x12 1/2".

PLACE YOUR ORDER NOW!

Price - - - \$35.00

Send for Free Catalog Describing
Other Germinators

SEEDBURO EQUIPMENT COMPANY

(Seed Trade Reporting Bureau)

629 Brooks Building

CHICAGO, ILLINOIS

SOY BEANS . . . and People

THE United States Army now has developed field rations utilizing soybean flour, according to an announcement by Captain R. H. MacDonell, Chicago Quartermaster Department, in Oil and Soap, Journal of the American Oil Chemists' Society.

The soybean flour is utilized in biscuit form, known officially as Type I, Defense Biscuit. Its chief characteristics are a high concentration of food value, lightness, imperishability, and balance of essential food elements.

According to Captain MacDonell, the biscuit "shall be prepared according to best commercial practice from ingredients in the following proportions:

Whole Wheat Flour.....	73 pounds
Wheat Flour	103 pounds
Soybean Flour	100 pounds
Fine Cut Oat Meal.....	70 pounds
Gelatin	32 pounds
Whole Eggs	112 pounds
Dried Skim Milk.....	70 pounds
Sugar	24 pounds
Molasses	12 pounds
Shortening	114 pounds
Ammonium Bicarbonate	3 pounds
Salt	3 1/4 pounds

Cinnamon 9 ounce
Moisture content of finished product shall not exceed 6.5%."

About 30 per cent by weight, or 214 pounds of the 717.5 pounds called for in this recipe are of interest to the soybean industry — the 100 pounds of soy flour and 114 pounds of shortening.

The quality of these ingredients is rigidly prescribed in Quartermaster Corps regulations. "Soybean flour shall be processed from a select grade of properly dehulled soybeans. It shall be properly cooked and debittered and shall have a neutral, bland flavor. It shall contain no more than one per cent fat, no more than six per cent ash, and no less than 50 per cent protein. It shall be of sufficient fineness so that 97 per cent will pass through a U.S. Bureau of Standard screen No. 100. It shall be prepared in a sanitary manner, according to the best commercial practice."

"Shortening shall be hydrogenated vegetable shortening with an active free-oxygen-keeping test of 140 hours minimum and shall retain satisfac-

tory flavor after heating to a temperature of 400 degrees F."


"Who will use these biscuits? Captain MacDonell emphasizes that this still is speculative. Type I, Defense Biscuit, and a graham biscuit which also utilizes vegetable shortening have been designated as part of "U. S. Army Field Ration K." This is a "Special Ration: A Parachute-Mobile Troop's and Doughboy's Ration."

Field Ration K also is under consideration by the Army Air Corps for storage in planes. It is highly imperishable, and is of course intended for conditions where access to Army field kitchens is impossible.

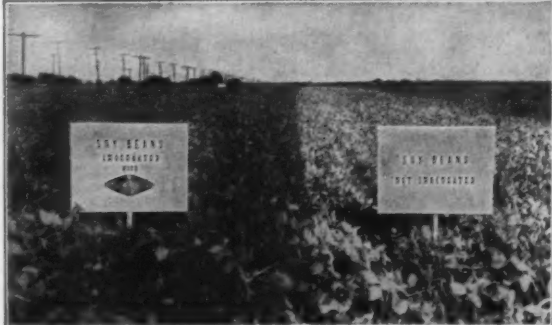
The soybean industry may be proud to be thus in a position to serve the needs of the nation's armed forces, although of course the extent of this service is still largely speculative and experimental.

—s b d—

The 1942 production goal of 9 million harvested acres of soybeans should yield more than 1 billion pounds of oil or one-tenth of our consumption of all fats and oils.



INOCULATION FOR SOY BEANS



EFFECT OF INOCULATION ON SOY BEANS

Treatment	Yield Seed	Pounds Protein per ton	
		Seed	Hay
Inoculated	46.6 bu.	705	316.2
Not Inoculated	34.7 bu.	621	292.4
Gain for Inoculation	11.9 bu.	84	23.8

(University of Illinois Bulletin No. 310)
Prepared only by

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An organization thoroughly trained in the production of effective printed advertising for the poultry, feed and farm equipment industries. Your inquiry will promptly bring complete details of our service — all without obligation. Write us today.

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GUARANTEED ... exactly

A standard guarantee is not good enough for Staley's Soybean Oil Meal. Minimum analysis makes it certain that this feed is an economical, palatable, healthful source of protein. But the customer must know more than that:



The Staley Customer NEVER GUESSES He Knows!

No wonder the sale of Staley's Soybean Oil Meal has been growing by leaps and bounds! "The Staley customer never guesses — he knows!"



While each car is being loaded, an inspector takes samples of the feed and sends them to the Staley chemical laboratory — and the car is held on the track until the chemist has completed his report. Then a certificate is forwarded to the dealer, showing the actual protein analysis of the particular car shipped to him.

FEED DIVISION

DECATUR, ILLINOIS **A. E. STALEY MFG. COMPANY** PAINESVILLE, OHIO

If You Have Poultry or Livestock and If You Are a Soybean Grower

Then you should be feeding Purina Chows. These feeds are supplements to your grain and they are made to do a more profitable job of producing pork, eggs, or milk than straight grain will do. And they use soybean meal as a major source of protein. In fact, Purina Mills is the largest user of soybean oilmeal in the country. Use the feeds that utilize the beans you grow! Purina Mills, St. Louis, Mo.



INOCULATION PAYS!



THERE is a story in the picture at left, and it concerns inoculation of soybeans. Joe E. Johnson, left, Champaign, Ill., farm manager and vice-president of the American Soybean Association, is holding a sample of inoculated soybeans, while a friend (right) holds a sample of uninoculated soybeans.

Both samples were grown on the Franzen Farm, Rantoul, Ill.

The following table gives statistical data on the inoculated and uninoculated soybeans:

	Inoculated	Not inoculated	Gain for Inoculation
	Grams	Grams	Grams
Hay yield (10 plants green weight).....	451	258	193
Dry Weight.....	155.5	90.25	65.25
Bean yield (100 plants)....	535.5	277.5	258

These gains are not pointed out as being typical, but they do present an idea of the advantage to be gained by inoculation.

The latest Purdue University recommendations on inoculation just made available to The Soybean Digest, state:

"Seed should be inoculated for a given field unless it is assured that no further improvement can be obtained from additional inoculation. On land that had not previously grown soybeans, inoculation increased yields six bushels per acre as an average for three years in Purdue tests. Reliable commercial culture should be used."

— s b d —

SET FERTILIZER PRICES

By order of Price Administrator Henderson, maximum prices have been established for mixed fertilizers, superphosphate and potash, effective from February 27 to April 27. The maximum prices are governed by the prevailing prices from February 16 to 20 inclusive. All fertilizer manufacturers have been instructed to notify the dealers of the maximum prices, and the OPA of their intention to comply.

— s b d —

The statistics of the total disappearance of crude fats and oils for the United States in 1940 show that 67 per cent was used as, or in, human foods, 20 per cent for soap, 8 per cent in paints, varnishes, linoleum, and printing inks, and 5 per cent for miscellaneous purposes.

GROWER*

BRIEFLY summarizing the reasons for increased soybean acreage for 1942 — I would say that first — it is our patriotic duty. We have been asked to step in and fill the gap caused by the loss of our oriental oil seeds. Acreage has been released and there are no farm program restrictions to keep us from raising soy beans. Second — seed for this increased soybean acreage will be available — and available also is the skill on the part of the



HOWARD ROACH

corn belt farmer to do this job. Third — soybeans are an insurance for every corn belt live stock farmer that he will have adequate forage supplies to see him through the next feeding season. Fourth — we have the farm plant and machinery necessary to do this job. In fact — it only means using our farm plant to greater capacity to take care of the job allotted to us. Fifth — processors have assured us that they have the capacity to convert this important crop into food and munitions. And finally — the Commodity Credit Corporation has so arranged — that soybeans for 1942 will be a most profitable crop for the producer.

*Excerpts from address at Ames, Iowa, February 9, on program discussing soybean acreage increase from various points of view.

LEGUME-AID



The Guaranteed Inoculant in the Convenient Scientific Package

ALTHOUGH so tiny that they may be seen only through a high power microscope, legume bacteria, like all living breathing things, require both air and water to survive. Made up into an inoculant, they may be weakened and even killed, if allowed to become too dry. LEGUME-AID is prepared from superior multiple strains of these bacteria which have proved their adaptability.

for All Varieties of Soybeans

- Precise laboratory control selects, multiplies and strengthens the desired bacteria. Scientifically devised packages assure their arrival at point of use in a fresh, vigorous, active condition.

- The packaging is not only biologically correct, but offers features of exceptional convenience and economy. Enough LEGUME-AID to treat five bushels of Soybean seed is sealed in a "PLIOFILM" inner bag. The nature of this waterproof material assures proper retention of moisture but permits entrance of necessary oxygen. Each

inner bag is placed in an individual box bearing an expiration date stamped on its top. When used by or before this date, LEGUME-AID is absolutely guaranteed to give satisfactory results or the purchase price will be refunded.

- Ten 5-bushel treatments of LEGUME-AID are contained in a space-saving carton, attractively labelled and easy to handle. Find out for yourself why so many Soybean growers use this quality inoculant. Consult your seed dealer or inquire direct.

Pliofilm INNER BAG KEEPS BACTERIA ACTIVE



PRODUCED, TESTED AND GUARANTEED BY
AGRICULTURAL LABORATORIES, INC.
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Beat those Weeds —

INOCULATE SOYBEANS WITH NITRAGIN

Test Plots at Eastern Experiment Station Demonstrate Value of NITRAGIN

(Top Photo) This picture, taken July 22, shows the heavier growth and darker color due to NITRAGIN. Compare the inoculated soybeans (right) with the uninoculated, light-colored and thin crop on the left side of the picture.

(Lower Photo) This picture, taken 35 days later, shows the nitrogen-starved uninoculated plants smothered out by weeds . . . a complete crop failure. The inoculated plants have continued their vigorous, luxurious growth with free nitrogen taken from the air by NITRAGIN bacteria.

(Inset) A soybean root with typical cluster of nodules produced by NITRAGIN inoculation. Not all soybean bacteria living in the soil are beneficial, even though they form nodules on the roots. That's why it pays to inoculate every seeding of soybeans with NITRAGIN, whether or not the crop has been grown on the same soil before.



When you buy inoculation, you are buying something on faith. Inoculating bacteria are invisible to the naked eye and you can't make a quick test of different brands. Your best guarantee of quality is to get the inoculant that has been thoroughly tested and enjoys wide recognition by farmers and agricultural authorities. NITRAGIN is the oldest, most widely used inoculant. It is scientifically selected and tested, and is produced in the largest, most modern laboratory of its kind in the world by scientists who have devoted years to the study of soils and legume bacteria. For a free bulletin on inoculating soybeans, write —

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